

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 14

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GERALD L. BAUER, WILLIAM V. CHILDS
CHARLES F. KOLPIN and DEAN T. RUTTEN

Appeal No. 96-1110
Application 08/181,669¹

HEARD: July 12, 1999

Before KIMLIN, GARRIS and WARREN, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 4-6, all of the claims remaining in the present application. The appealed claims are reproduced below.

¹ Application for patent filed August 14, 1994. According to appellant, this application is a continuation of application 07/990,368, filed December 15, 1992, now U.S. patent 5,290,413, issued March 1, 1994 which is a continuation of 07/736,227, filed July 26, 1991.

4. In a process for the electrolytic production of fluorine gas in an electrochemical cell comprising molten KF-2HF electrolyte a first electrode used as a hydrogen-generating cathode, a second electrode used as a fluorine-generating anode, wherein the improvement comprises generating fluorine in said cell by using as said anode nongraphitic low-permeability carbon with a plurality of parallel, substantially vertical channels disposed around the circumference of said anode.

5. An electrode for use in an electrochemical cell for electrolytic production of fluorine gas from molten KF-2HF electrolyte, said electrode comprising a current collector and an anode, wherein said anode of said electrode is comprised of nongraphitic porous carbon and is used as a fluorine-generating anode, and a means for purging fluorine generated at said anode and dispersed in said porous anode with metered, downward flowing gas that is inert to said fluorine, such means for purging having a terminus above an electrolyte upper surface when said electrode is positioned in said electrochemical cell.

6. The electrode according to claim 5 wherein said means further comprises a conduit means positioned in said anode at a geometric center of said anode, commencing at upper, outside surface of said current collector and terminating before the upper surface of said electrolyte.

In the rejection of the appealed claims, the examiner relies upon the following references.

Saprokhin et al. (Saprokhin)	4,511,440	Apr. 16, 1985
Ruehlen et al. (Ruehlen)	3,655,535	Apr. 11, 1972
Marshall (British patent)	GB 2,135,335	Aug. 30, 1984

Appellants' claimed invention is directed to a process for the electrolytic production of fluorine gas, as well as an electrode used in the process.

Appealed claim 5 stands rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103 as being unpatentable over GB '335. Claims 5 and 6 stand rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103 as being unpatentable over Ruehlen. Claim 6 stands rejected under 35 U.S.C. §103 as being unpatentable over GB '335 in view of Ruehlen. Claim 4 stands rejected under § 35 U.S.C. 103 as being unpatentable over Saprokhin.

We have thoroughly reviewed each of appellants' arguments for patentability. However we are in full agreement with the examiner that the subject matter defined by appealed claims 5 and 6 is unpatentable in view of the applied prior art. Accordingly, we will sustain the examiner's rejections of claims 5 and 6. However, we agree with appellants that the prior art relied upon by the examiner fails to establish a prima facie case of obviousness for the subject matter of claim 4. Accordingly, we will not sustain the examiner's rejection of claim 4 under § 103 over Saprokhin.

We consider first the examiner's rejection of claim 5 under §§ 102/103 over GB '335. There is no dispute that GB '335, like appellants, discloses the electrolytic production of fluorine gas by use of an electrode comprising an anode much like the

one claimed. However, it is appellants' contention that GB '335 delivers the purge gas to the outside of the anode, whereas "*delivery means of the present invention facilitates purging from the interior of the anode to the outside surface of the anode.*" (page 10 of brief). According to appellants, the gas flow in the cited reference is opposite to that of the present invention.

We find appellants' argument nonpersuasive since, like the examiner, we find it to be non-germane to the subject matter defined by appealed claim 5. Claim 5 recites "a means for purging fluorine generated at said anode and dispersed in said porous anode with metered, downward flowing gas that is inert to said fluorine." As explained by the examiner, the claim does not require the argued flow of the purge gas from the interior of the anode to its outside surface. Claim 5 only requires that fluorine which is dispersed in the porous anode is purged by a downward flowing gas that is inert to the fluorine. We agree with the examiner that it would appear that the purge gas of GB '335, entering at 17, would function to purge the fluorine gas dispersed in the porous anode. Appellants have not advanced any evidence or arguments that such is not a reasonable interpretation of the reference process.

We next consider the examiner's rejection of claims 5 and 6 under §§ 102/103 over Ruehlen. Claim 6 further requires that the purging means comprises a conduit

positioned at the geometric center of the anode. Appellants do not refute the examiner's factual determination that Ruehlen discloses a purging conduit at 58 that is located at the center of the anode. However, appellants maintain that "Ruehlen discloses an electrochemical cell for electrochemical fluorination, a cell that uses fluorine gas and does not generates (sic, generate) fluorine gas." (Page 12 of brief). According to appellants, this is a fundamental difference between the electrodes of the present invention and Ruehlen and, therefore, Ruehlen "does not anticipate the element of the present claims that requires the anode be *useful in an electrochemical cell for the generation of fluorine*." (page 11 of brief). However, we agree with the examiner the manner in which the claimed electrode is used is not germane to the structure of the anode defined by appealed claims 5 and 6. It is well settled that the intended use of an apparatus or device is not relevant to the patentability of the claimed structure,² and appellants have presented no argument that draws a distinction between the structure defined by claims 5 and 6 and the structure of the Ruehlen electrode. Also, inasmuch as the electrode of Ruehlen generates fluorine which reacts with fluorinatable materials, we concur with the examiner that it is reasonable to conclude that the electrode of Ruehlen is capable of producing fluorine gas.

² In re Yanush 477 F.2d 958, 960, 177 USPQ 705, 706-707 (CCPA 1973), In re Casey 370 F.2d 576, 580, 152 USPQ 235, 238 (CCPA 1967). See also In re Self 671 F.2d 1344, 1351, 213 USPQ 1, 7 (CCP 1982).

Appellants do not advance a convincing line of reasoning that persuades us that the Ruehlen electrode is incapable of producing fluorine gas, but simply states that "it is not obvious from the reference that the anode for electrochemical fluorination is capable of performing the process of generating fluorine gas." (page 12 of brief).

We will also sustain the examiner's rejection of claim 6 under §103 over the combined teachings of GB '335 and Ruehlen because we are persuaded that the collective teachings of the references would have suggested to one of ordinary skill in the art that electrochemical cells of the type claimed could direct a purge gas, alternatively, either through the core of the anode or around its exterior in order to remove the products of the reaction. While appellants urge that the references are not combinable since GB '335 is used to generate fluorine whereas Ruehlen consumes fluorine, appellants have not presented a reason why the production of different products mandates a different flow pattern for the purge gas, i.e., appellants have not explained why one of ordinary skill in the art would have been dissuaded and, therefore, found it unobvious to employ the purge system of Ruehlen in the electrochemical cell of GB '335.

We now turn to the rejection of claim 4 under § 103 over Saprokhin. Appealed claim 4 defines the anode as having a "plurality of parallel, substantially vertical channels disposed around the circumference of said anode." On the other hand, the

examiner acknowledges that Saprokhin discloses vertical channels disposed in the interior of the anode. The examiner concludes that appellants' circumferential channels would have been obvious because it appears that the interior channels of Saprokhin and the claimed circumferential channels are functional equivalents. However, as emphasized by appellants, Saprokhin provides a specific disclosure that belies the functional equivalency relied upon by the examiner. In the paragraph bridging cols. 2 and 3, Saprokhin explains why the vertical channels are intentionally situated at the interior of the anode in order to decrease the thickness of the fluorine layer on the carbon surface, which layer produces a voltage drop. Accordingly, we agree with appellants that Saprokhin would have provided no suggestion to one of ordinary skill in the art to modify the disclosed anode by placing the vertical channels around the circumference of the anode, as required by claim 4 on appeal.

On final point remains. The examiner's objection to the specification under 35 U.S.C. § 112, first paragraph, is not a reviewable matter for this board. The appropriate avenue for appellants to dispute the objection is a petition to the commissioner.

In conclusion, based on the foregoing, the examiner's rejections of claims 5 and 6 are affirmed. The examiner's rejection of claim 4 is reversed. Accordingly, the examiner's decision rejecting the appealed claims is affirmed-in-part.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

EDWARD C. KIMLIN
Administrative Patent Judge

BRADLEY R. GARRIS
Administrative Patent Judge

CHARLES F. WARREN
Administrative Patent Judge

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